School-Home Notes With and Without Response Cost: Increasing Attention and Academic Performance in Low-Income Children With Attention-Deficit/Hyperactivity Disorder

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This study evaluates the effectiveness of school-home notes for increasing academic productivity and on-task behavior of low-income, African American children diagnosed with attention-deficit/hyperactivity disorder (ADHD). Using a withdrawal, alternating treatments design, each student received school-home notes with and without a response cost component where students could lose points based on inappropriate classroom behavior. Under both conditions, teachers evaluated student behavior daily and parents provided consequences based on the evaluation. On-task behavior and academic productivity improved in all students under both treatment conditions. Adding response cost to the intervention did not increase its effectiveness. Teachers, parents, and students preferred the school-home note with the response cost component.

Keywords: school-home note, response cost, classroom interventions, ADHD

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Attention-deficit/hyperactivity disorder (ADHD) is the most common psychological disorder in children (Rowland, Lessene, & Abramowitz, 2002). Prevalence estimates range from 2% to 12%, depending on criteria used for diagnosis (Kube, Petersen, & Palmer, 2002). For children with ADHD, the core symptoms of inattention, hyperactivity, and impulsivity frequently result in difficulty following directions, staying organized, and completing and handing in classwork and homework (Abramowitz & O'Leary, l991; Evans, Axelrod, & Langberg, 2004). These symptoms often lead in turn to decreased productivity, low achievement, failing grades, and retention (Barkley, 1990).

In the United States, ADHD is more commonly diagnosed in African American children from low socioeconomic (SES) backgrounds than in Caucasian children from low SES backgrounds (Samuel et al., 1997). In addition, children with ADHD from impoverished households show more severe symptoms of ADHD than those from middle- and upper-class families (Barkley, 1997). Particularly problematic is the fact that psychostimulant drugs, which are a common and effective treatment for ADHD, can be very expensive and thus unavailable to impoverished families. Furthermore, a large multisite comparison of stimulant medication and behavioral interventions found an incremental effect for the behavioral intervention over medication in ethnic minority children that was not found for the Caucasian children, highlighting the need for research using participants from low SES minority groups (Arnold et al., 2003). Unfortunately, little research aimed at developing effective interventions has been conducted in these high-risk populations. The current study tests the effectiveness of home-based contingencies for increasing the academic productivity in low-income, African American children with ADHD.

A variety of classroom management strategies have been used with children with ADHD to decrease disruptive behavior and increase work completion and attention. Commonly employed interventions include token economies, rewards, response cost, and curriculum modifications (Abramowitz & O'Leary, l991; DuPaul & Stoner, 1994).

Response cost, the removal of privileges, tokens, or points contingent on misbehavior, has proven effective in increasing ADHD children's on-task rates and reducing disruptive behavior (Abramowitz, Eckstrand, O'Leary, & Dulcan, 1992; McGoey & DuPaul, 2000). Studies by O'Leary and colleagues have shown that positive classroom consequences implemented by teachers are not nearly as effective as when combined with or replaced by negative consequences (Abramowitz & O'Leary, 1991; Acker & O'Leary, 1987; Pfiffner & O'Leary, 1984). Negative consequences studied include reprimands and mild punishments, such as timeout and the removal of privileges. The pattern was obtained even when enriched positive consequences were provided. However, effective reprimands must

be delivered immediately, in a calm tone of voice, and in close proximity to the child (Abramowitz & O'Leary, l991). Reprimands that were loud, nonspecific, and inconsistent actually caused a deterioration in classroom performance (Rosen, O'Leary, Joyce, Conway, & Pfiffner, 1984).

Several studies have examined the effectiveness of response cost alone, or in combination with rewards, for increasing desired classroom behavior in children with ADHD (Carlson, Mann, & Alexander, 2000; McGoey & DuPaul, 2000). In contrast to rewards, response cost procedures have been shown to lead to greater improvements in on-task rates and academic accuracy and greater maintenance of treatment effects following termination of treatment (Carlson, Mann, & Alexander, 2000; Sullivan & O'Leary, 1990). For example, two studies employed interventions where student misbehavior resulted in forfeiting the opportunity to participate in a classroom lottery. A slip of paper that served as the lottery ticket was removed from a child's desk when misbehavior occurred (Proctor & Morgan, 1991; Witt & Elliott, 1982). The remaining slips of paper were pooled and one ticket was drawn at the end of the class period or week. Rewards were provided to the lottery winner. Both studies found this form of response cost to be effective in increasing appropriate classroom behavior.

McGoey and DuPaul (2000) compared the effectiveness of response cost and token reinforcement procedures in four preschoolers with ADHD. In the token reinforcement phase, students earned buttons on a chart when they behaved appropriately. During response cost, they lost buttons contingent upon inappropriate classroom behavior. Students earned rewards at the end of the day by losing only a few buttons. Both interventions significantly reduced disruptive behavior, but teachers preferred the response cost intervention. The authors cite ease of administration as the likely reason for the teachers' preference.

Parental involvement in children's schooling, including homework and academic skill development, is widely cited as a key factor leading to skill attainment and optimal academic performance in children with ADHD (Barkley, 2000; Robin, 1998). Research on school-home notes shows that teacher-parent communication combined with home-based contingencies is effective for increasing children's classroom attentiveness and academic productivity (Kelley, 1990). School-home notes require teachers to evaluate students' behavior daily, students to bring the evaluations home, and parents to provide consequences based on the evaluation. School-home notes allow parents to offer powerful reinforcers that are not available at school and promote communication and shared responsibility between parents, teachers, and students. The procedure has been used to increase a wide range of classroom behaviors including handing in homework, attendance, attention, and classwork completion (Kelley, 1990). The behavior of children from preschool through high school has improved with the use of

school-home notes (Schumaker, Hovell, & Sherman, 1977; McCain & Kelley, 1993). Simplicity, ease, and efficiency are valuable advantages of school-home notes over classroom-based procedures; and, the notes are judged to be highly acceptable by classroom teachers and parents (Galloway & Sheridan, 1994: McCain & Kelley, 1994).

Two studies compared the effectiveness of school-home notes with and without a response cost component for inattentive children (Kelley & McCain, 1995; McCain & Kelley, 1994). In both studies, students were identified as inattentive by their teachers and their observed classroom behavior indicated low rates of on-task behavior. The children's classroom teacher used a three-point scale to evaluate whether the student used their classroom time wisely and completed classwork satisfactorily. On days when response cost was added to the procedure, teachers reprimanded the target child prudently and instructed him or her to cross off one of a series of happy faces depicted on the note. Both procedures resulted in significantly higher rates of on-task behavior and academic productivity compared to baseline rates. The addition of response cost was associated in both studies with higher rates of on-task behavior in comparison to the alternative procedure. Teachers, students, and parents all preferred the school-home note to include response cost. However, the children in these studies were from middle-income families and did not necessarily meet criteria for ADHD.

Very few studies have evaluated the use of any behavioral intervention for children from lower SES families diagnosed with ADHD, and no study to our knowledge has examined the effectiveness of school-home notes for these underserved populations. As a step toward addressing the need for effective interventions in such high-risk children, the current study evaluates the use of school-home notes with African American children with ADHD from low-income families. Like previous research, this study compared the effectiveness of school-home notes with and without response cost on rates of on-task behavior and academic productivity. Unlike previous research, all children met the diagnostic criteria for ADHD, and none of the children were medicated. Thus, the study evaluated the important question of whether school-home notes can be effective in the absence of medication.

METHOD

Participants and Setting

Six elementary children attending regular education classes participated. All children were African American and between the ages of 6 and

8 years. Criteria for inclusion were (1) teacher referral for problematic classroom behavior, (2) a diagnosis of ADHD, (3) significant levels of off-task behavior during baseline observations (greater than 50% off-task), (4) average scores on six subtests of the Woodcock-Johnson Test of Achievement–Third Edition, (5) member of an ethnic minority group, and (6) student at an inner-city elementary school primarily serving low-income children.

All participants were teacher-referred. Participating teachers sent a flyer with a brief description of the study and the investigator's contact information to the parents of children who had previously been diagnosed with ADHD or displayed excessive inattention or disruptive behaviors in the classroom. A total of 13 flyers were given to parents of children in four different elementary classrooms in the same school. Eight parents contacted the investigator to enroll in the study and of their children, seven met criteria for inclusion. One child was excluded after beginning a trial of stimulant medication during the course of the study. The other six students remained unmedicated and in the study for its entirety. For all families, yearly income was $30,000 or less.

Before selection, the first author determined that all participants met criteria for ADHD based on teacher and parent (mother) interviews, direct observations in the classroom, and the following behavior rating scales: Conners' Parent Rating Scale- Long Form and Conners' Teacher Rating Scale- Short Form (Conners, 1997). All mothers endorsed at least six of the nine *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (American Psychiatric Association, 2000) criteria for both primarily inattentive and primarily hyperactive/impulsive ADHD. The teacher of each participant judged the child's hyperactivity and inattention to be both disruptive to her classroom and impairing to the student's academic functioning. Parent and teacher data were in agreement for all participants, indicating that ADHD symptoms occurred across multiple settings. Direct observations, using the observational coding system described below, showed that all six participants were on-task in the classroom less than 50% of the time before treatment. Both mother and teacher data from the Conners' rating scales indicated elevations greater than two standard deviations above the mean on the ADHD Index.

Also, six subtests of the Woodcock-Johnson Test of Achievement–Third Edition were administered to each child (Letter-Word Identification, Reading Fluency, Calculation, Math Fluency, Spelling, and Applied Problems). All scores fell in the average range, as defined by the testing manual. This was done to rule out any major academic skill deficits that might have rendered the student unable to complete the classwork assigned. None of the participants were taking psychostimulant medication during the study.

Only one participant (Joe) had previously been treated for behavioral, cognitive, or any other psychosocial conditions.

The intervention was implemented in the classroom of each student. Both first graders, Charles and Lauren, were in the same classroom. All four second graders, Jerry, Joe, Steve, Maurice, were in the same classroom. Both classrooms were regular education classrooms in an inner-city public school with one teacher, a 1:29 teacher to student ratio. Eighty percent of the students at this school are eligible for free or reduced-price lunch, indicative of income at the poverty level (CCD Public School Data, 2003-2004)

Dependent Measures

Observational Coding System

Student behaviors were coded using 15-second intervals. The coding system used was a modification of a method used by Pfiffner and O'Leary (1987). Each interval was coded as either on-task or off-task. An interval was coded as on-task if the student was engaged in appropriate, assignment-related activities for the entire 15-second interval. An interval was coded as off-task if the student was not engaged in the assignment and his eyes or head was oriented away from the assignment. Observations were conducted in the morning during independent seatwork activities. Observations were 30 minutes in length. The dependent measure was percentage of intervals in which the student was engaged in on-task behavior.

Observers were undergraduate and postgraduate students who were blind to the purpose of the study. Training consisted of didactic instruction in the use of the coding system, discussion and modeling of examples of possible classroom behavior, and practice sessions in several elementary classrooms in which randomly selected students were observed and coded by two or more trainees at a time. Observers were required to obtain interrater agreement above 90% during the practice sessions before beginning to code the study participants. Agreement was calculated by dividing the number of agreements by the total number of possible agreements. Twenty percent of the observation sessions were coded by two observers and compared during data collection to ensure that reliability was maintained. An average of 96% agreement was obtained during training sessions (range = 92%–100%) and an average of 96% (range = 90%–100%) was maintained throughout the study.

Completed Academic Assignments

The percentage of classwork attempted as well as the percentage of work completed correctly during the morning work period was evaluated. The researcher obtained each child's classwork from their "Daily Oral Language Journals." The Daily Oral Language Journal is a notebook in which students complete their morning work. All children in the school district are required to keep a similar journal. The researcher made copies of each assignment from their journal. The copies were graded for percent complete (number of items completed/number of items assigned) and percent correct (number of items correct/number of items assigned). Both the student's teacher and the researcher graded each assignment independently to ensure reliability. The two graders were in agreement 100% of the time. The two dependent measures were the mean percent of problems completed and the mean percent correct daily during each phase of the study.

Treatment Acceptability

At the completion of the study, each student, teacher, and mother were interviewed, briefly and privately, to assess the acceptability of the two school-home notes that were used. The following questions were asked: Did you feel the school-home note helped you/your child? Would you like to continue using school-home notes? Would you recommend school-home note to a friend/parent/teacher who was experiencing similar behavior problems with a child/student? How easy or difficult was it to use the school-home note? Overall, how pleased were you with the child's/your improvement? Which of the school-home notes did you prefer? An attempt was made to administer the Treatment Evaluation Inventory-Short Form to the parents in order to compare the two treatments. However, several of the parents appeared unable to read and/or comprehend the questionnaire; therefore, we substituted the above questions as a simpler approach for assessing treatment acceptability.

Procedure

Design

A withdrawal design with alternating treatments was used in order to compare the effects of a school-home note with and without response cost.

The two interventions were randomized across days throughout treatment intervals.

Baseline

During baseline, teachers were instructed to respond as usual to appropriate and inappropriate classroom behavior. No specific contingencies for altering behavior were implemented. Daily observations were conducted in the classroom for 30 minutes. Observers were located in an unobtrusive position inside the classroom. The observation procedures and setting remained the same throughout all phases of the study.

General Training Procedures

Before beginning the treatment phase of the study, parents, teachers, and students were instructed in the use of home-based reinforcement for classroom behavior. Training sessions were conducted separately for each teacher and each mother-child dyad. During training, parent and child were shown the two school-home notes. It was explained that one of the notes would be completed by the teacher each day and that the two types of notes would alternate randomly. Specific instructions for using each note were described in detail. Each student was told that the note would be placed on his or her desk and that the teacher would rate his or her morning behavior daily. Teachers were taught to evaluate students at the end of the morning work period on the two target behaviors: completing classwork satisfactorily and using class time well.

Before implementation of treatment, the researcher met individually with each family to determine appropriate contingencies for bringing home a "good" note. The same contract was used for each child, but the criteria for what constitutes a "good" note was not, and the list of rewards were tailored to the individual student. The contracts were renegotiated several times throughout the treatment phases for two purposes. First, renegotiating was used to ensure that the students still found the listed rewards motivating. Second, renegotiating allowed for the opportunity to increase the number of points necessary for positive consequences in order to continue shaping the child's performance.

School-Home Note Without Response Cost

During this condition, the note was placed on the student's desk at the beginning of the morning work period. The note included the target

behaviors "Completed Classwork Satisfactorily" and "Used Classtime Well." The teacher rated the student's performance at the end of the morning work session on each of the two target behaviors. For each, the teacher circled either "Yes," "So-So," or "No," based on her perceptions of appropriate classroom behavior. A rating of "Yes," worth 2 points, was used to indicate that the student behaved within the normal range; "So-So," worth 1 point, indicated that the student's behavior was marginally appropriate; and "No," worth 0 points, indicated unsatisfactory behavior. The note was taken home at the end of each day. The parent added up the points earned and delivered consequences contingent on the criteria set in the parent-student contract.

School-Home Note With Response Cost

On days in which a response cost note was used, the note was identical with the addition of five smiley faces at the bottom of the note. These were used in conjunction with the target behavior "Used Classtime Well" (see Figure 1). Teachers were instructed to have the student cross off a face for each instance of off-task or disruptive behavior during the morning work period. In addition to earning points for behavior ratings, one point was earned for each remaining smiley face.

Follow-up

During the follow-up interval, which lasted three weeks, individual school-home notes were designed for each child to target his or her specific problem behaviors, with the help of each child's teacher. Teachers were asked to choose between a response cost note and a traditional note for each student. Response cost notes were selected by all participants. The note was used daily, and feedback was given to the parents by the researcher during a telephone conversation at the end of each week.

RESULTS

On-Task Behavior and Academic Performance

Table 1 presents each student's mean percentage of time spent on-task during the four phases of the study. The data points collected for each student are presented in Figures 2–13. Before treatment, the six students

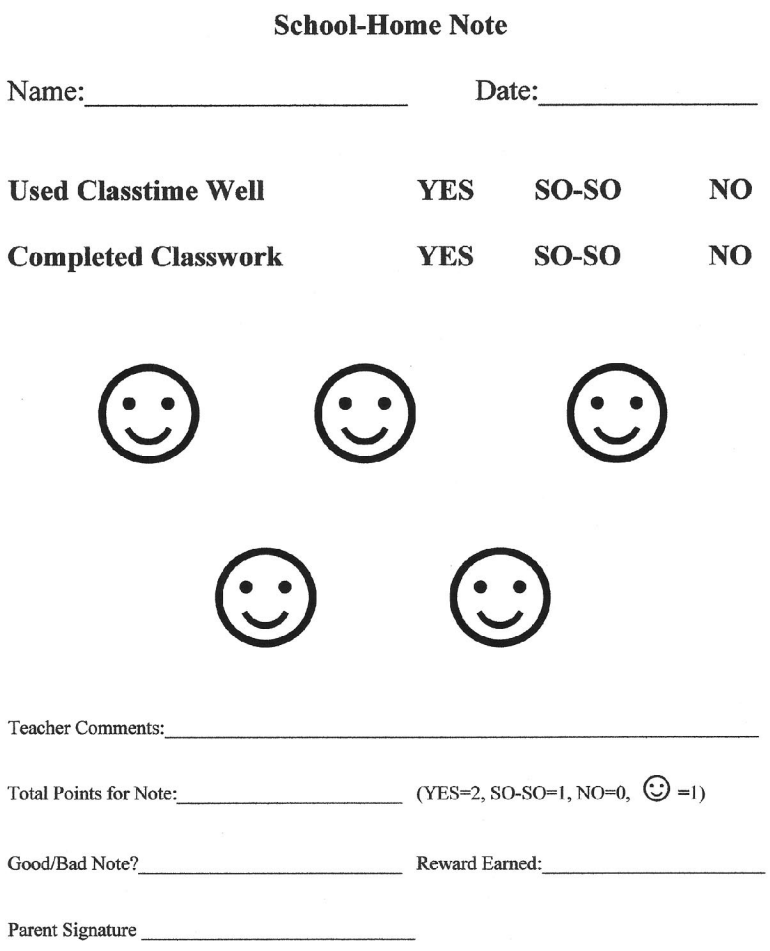

Figure 1. School-home note with response cost.

were on-task an average of 39.8% of the time. The introduction of treatment resulted in a significant increase in the percentage of time spent on-task. On-task percentages were equivalent across the two treatment conditions, school-home note (M = 83) and school-home note–response cost (M = 82.6). The withdrawal of treatment resulted in a decrease in the overall mean percentage of time spent on-task for all students (M = 44). The mean percentage of time spent on-task increased with the reintroduction of treatment in both the school-home note (M = 88.3) and school-home note–response cost (M = 86.5) conditions.

Table 2 presents each students' mean percentage of items completed and items completed correctly during the four phases of the study. Because

Table 1. Mean Percentage of Time Spent On-Task

Child	Baseline	Treatment SHN	Treatment SHN-RC	Baseline	Treatment SHN	Treatment SHN-RC	Follow-up SHN-RC
Charles	44	75	88	61	87	87	95
Lauren	46	80	80	53	78	78	92
Jerry	39	91	86	8	96	82	98
Joe	37	75	79	49	100	98	93
Steve	43	90	91	47	72	91	95
Maurice	30	85	74	46	86	94	98

Note. SHN = school-home note; SHN-RC = school-home note-response cost.

of logistic difficulties, it was impossible to measure the amount of work completed during different treatment conditions, as the conditions often alternated while a child was working on a particular assignment over several days. During baseline, the students completed an average of 60.3% of their work and correctly answered 44.8% of the items completed. The introduction of treatment resulted in a significant increase in percentage complete (M = 98.2) and percent correct (M = 90). The withdrawal of treatment resulted in a slight decrease in percentage complete (M = 89.8) and correct (M = 75.8). As expected, reintroduction of the school-home note resulted in an increase in items completed (M = 99%) and correct (M = 96.7%).

Treatment Integrity

After reviewing the note and providing consequences each day, parents were required to mark the note as "good" or "bad," to indicate

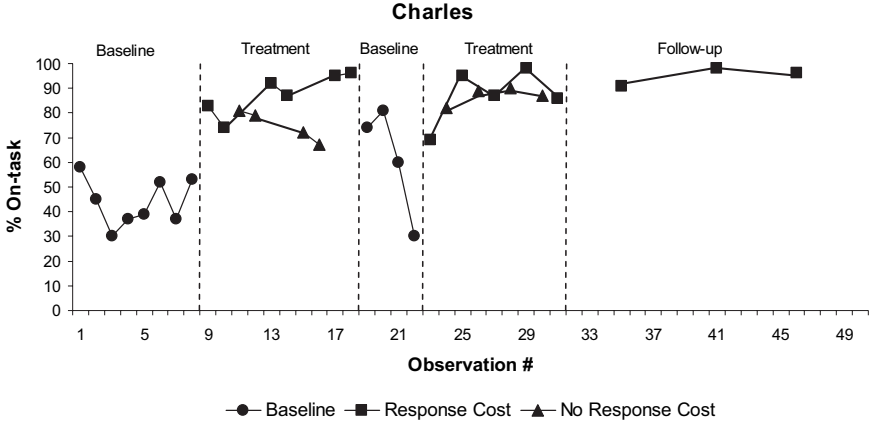

Figure 2. Charles' on-task behavior.

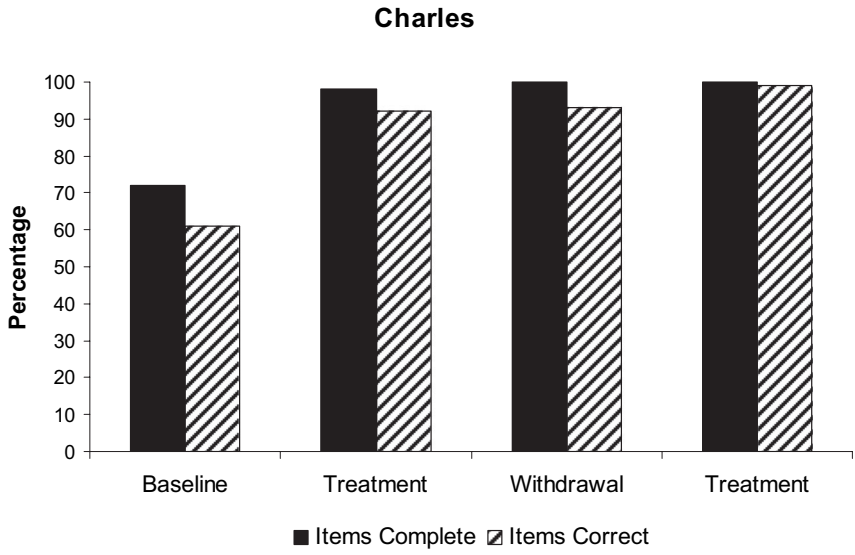

Figure 3. Charles' academic productivity.

whether or not a reward was provided, what reward was provided, sign the note, and send it back to school with the child the following day. In general, parents were compliant in reviewing the daily notes and providing consequences. Every note was received from Charles, Lauren, Steve, and Maurice. Joe's mother reported that he did not bring the note home to her on one occasion, and two other times he did not bring the note to school after she had

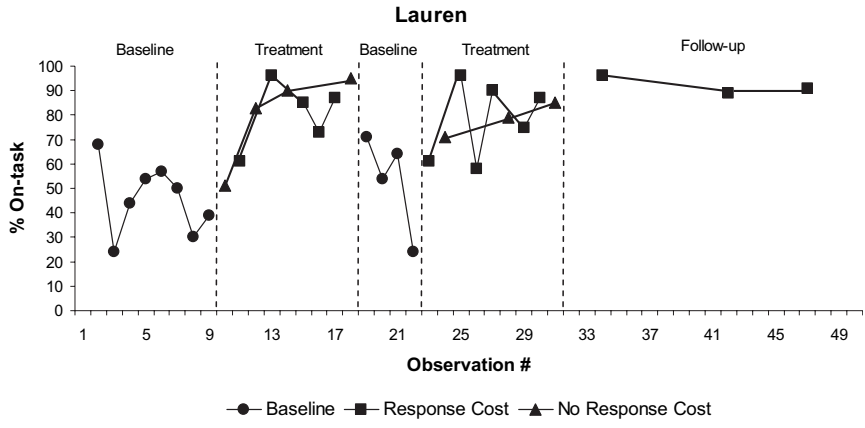

Figure 4. Lauren's on-task behavior.

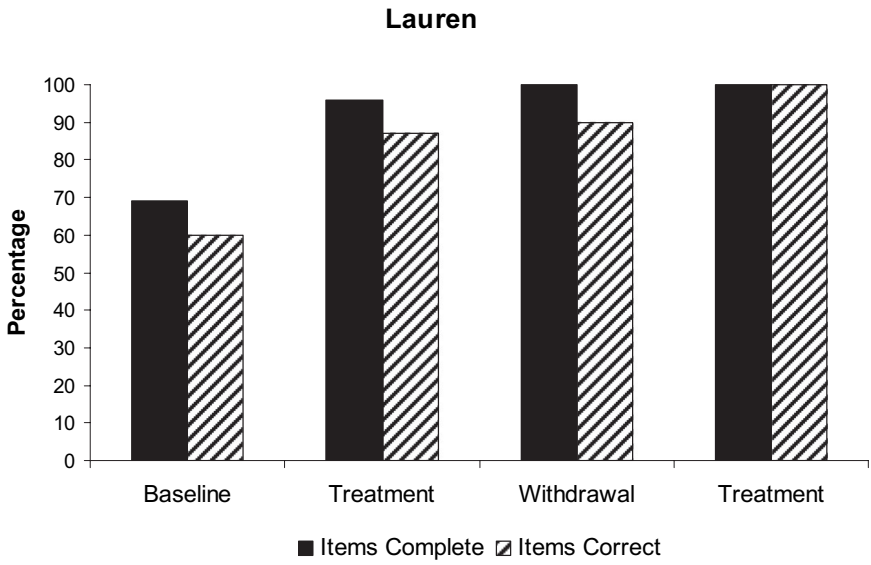

Figure 5. Lauren's academic productivity.

signed it. Jerry's mother had to be contacted four times because of the previous day's note not being returned. Each time she indicated that she saw the note, provided the appropriate consequences, and simply forgot to return the note to Jerry.

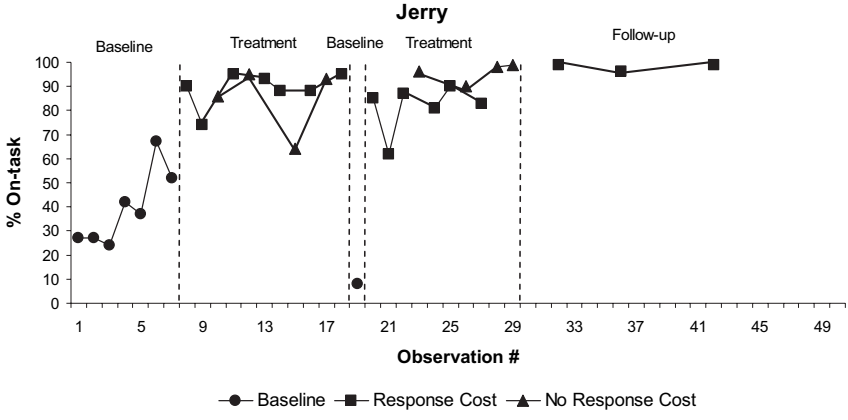

Figure 6. Jerry's on-task behavior.

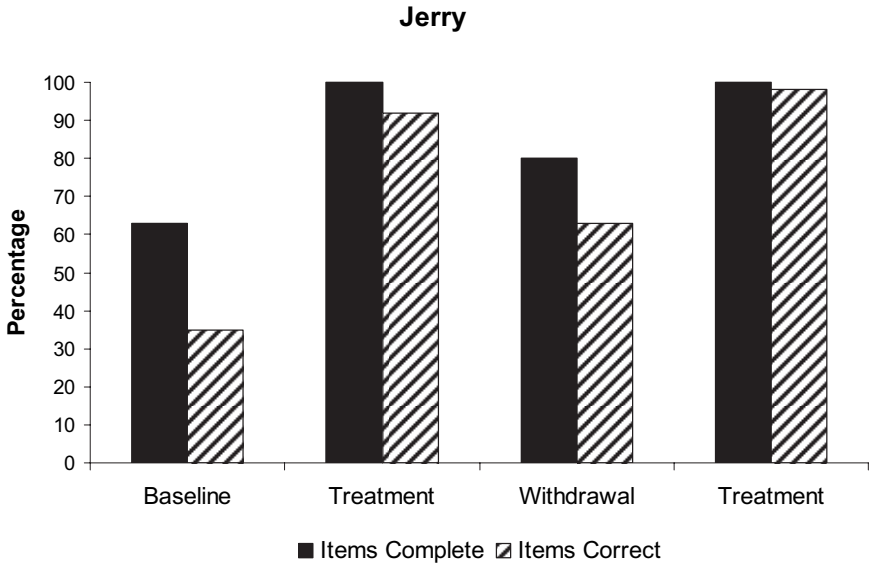

Figure 7. Jerry's academic productivity.

Treatment Acceptability

Did you feel the school-home note helped you/the child? All six mothers indicated that they felt the intervention had helped their child. Five mothers said they believed their child's classroom behavior and academic performance had improved "very much." Teachers stated that they had seen

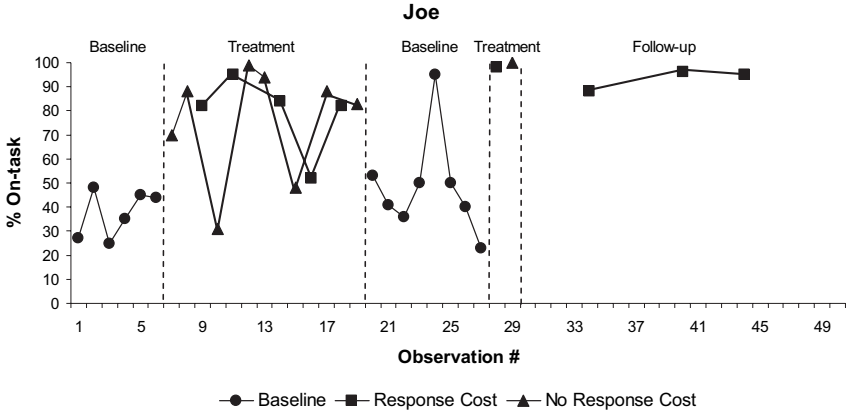

Figure 8. Joe's on-task behavior.

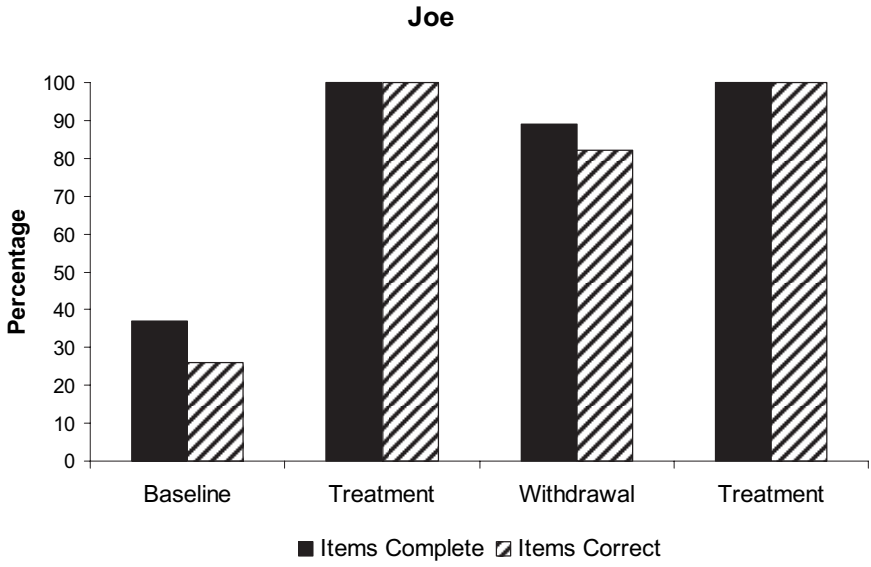

Figure 9. Joe's academic productivity.

dramatic improvements in all of those same five children. However, Jerry's teacher indicated only a moderate improvement. All of the children said they felt the school-home note helped them "do much better" in school.

Would you like to continue using the note? All participants stated that they would like to continue using a school-home note. Both teachers added

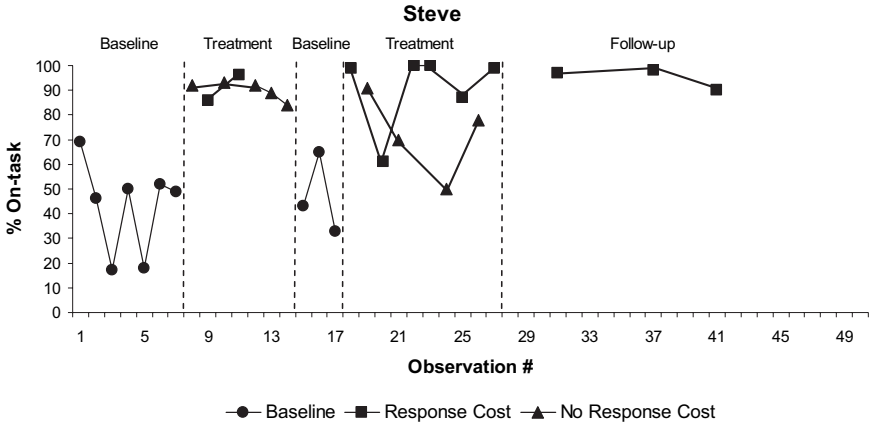

Figure 10. Steve's on-task behavior.

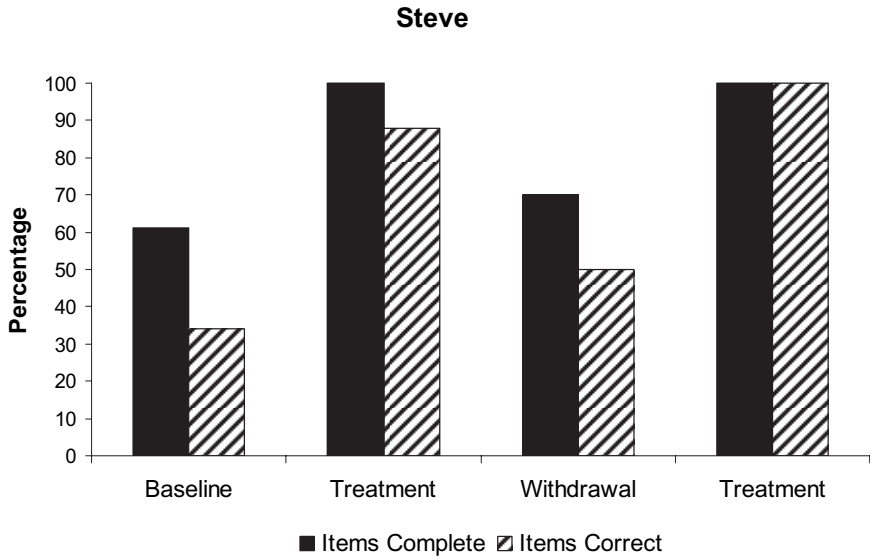

Figure 11. Steve's academic productivity.

they wished to utilize a note that covered the full school day, not just the morning work time.

Would you recommend using a school-home note to a friend/parent/teacher who was experiencing similar behavior problems with a child/student? All mothers agreed that they would recommend the intervention

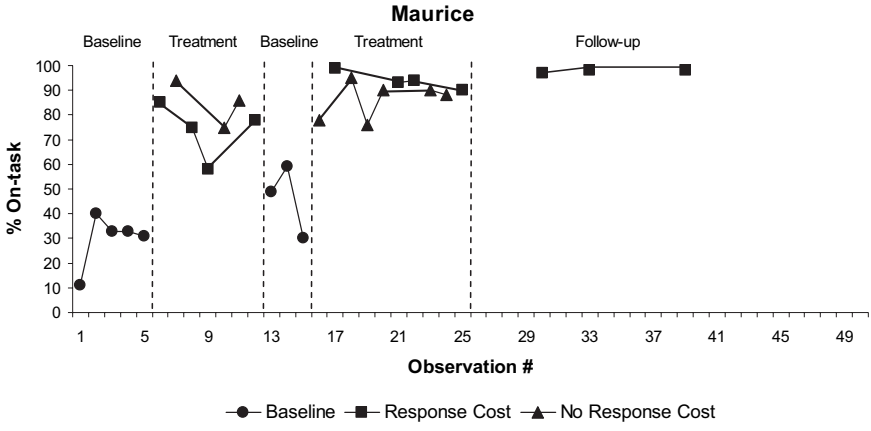

Figure 12. Maurice's on-task behavior.

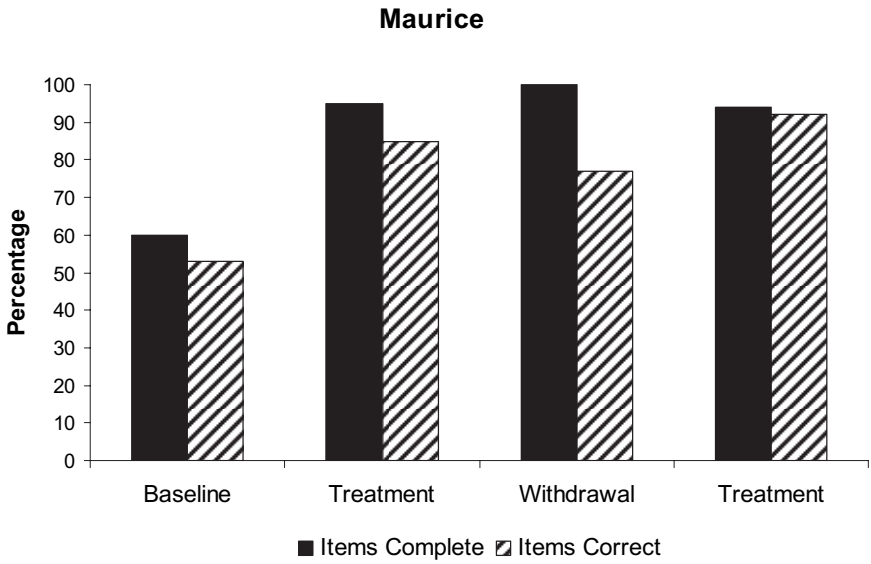

Figure 13. Maurice's academic productivity.

to a friend. Both teachers indicated that they had already suggested the school-home note to other teachers.

How easy or difficult was the school-home note to use? All participants indicated the note was easy to use. The teachers appreciated how little time and effort the intervention required.

Overall, how pleased were you with the student's improvement? Five mothers stated they were "very pleased" with their child's overall behavioral and academic improvements since the beginning of the study. Jerry's mother reported being "somewhat pleased" with his improvements. The teachers indicated they were "very pleased" with the improvements of Charles, Lauren, Maurice, Joe, and Steve and "somewhat pleased" with Jerry's improvements.

Table 2. Mean Percentage of Items Complete and Correct

	Baseline		Treatment		Baseline		Treatment	
Child	Complete	Correct	Complete	Correct	Complete	Correct	Complete	Correct
Charles	72	61	98	92	100	93	100	99
Lauren	69	60	96	87	100	90	100	100
Jerry	63	35	100	92	80	63	100	98
Joe	37	26	100	96	89	82	100	100
Steve	61	34	100	88	70	50	100	100
Maurice	60	53	95	85	100	77	94	92

Which school-home note did you prefer? All participants agreed that the school-home note with the response cost component was preferable. Both teachers indicated they perceived their students to be more on-task during response cost conditions.

Follow-up Results

Three weekly observations of each participant were conducted during follow-up. Teachers continued to implement treatment using the individualized notes that were created for each student. On-task behavior was maintained in all six children (see Table 1 and Figures 2, 4, 6, 8, 10, and 12). Classwork completed during the time period was not obtained. However, both teachers reported that all students continued to complete their work accurately in a manner evident during the treatment.

DISCUSSION

The present study demonstrated that home-based contingencies in the form of school-home notes were effective in increasing disadvantaged students' on-task rates and accurate classwork completion. The results suggest that school-home notes produced desired levels of attentiveness and academic productivity in all six participants, none of whom were receiving medication. Notes with and without response cost were equally effective. However, parents and teachers preferred the note with the response cost component.

This study evaluated the efficacy of school-home notes with ADHD children from low-income, African American families. The study contributes to the literature by demonstrating that school-home notes can be an effective means of increasing attention and classwork completion at school in an underserved, at risk population.

As hypothesized, the observational data showed that both forms of the intervention were effective in increasing on-task behavior. A second hypothesis, that the note plus response cost would be more effective than the note without response cost, was not supported. Instead, effectiveness of the two interventions varied across participants. Greater improvements during the response cost condition were seen in the performances of Charles and Steve. Conversely, Jerry appeared to perform slightly better with the no response cost note. For Lauren, Joe, and Maurice, no differences were seen between the two procedures.

The data gathered during the observations were relatively clear-cut for five of the six participants. Charles, Lauren, Jerry, Steve, and Maurice showed significant improvements in their classroom behavior at the time of intervention, which stabilized relatively quickly. Each showed decreases in on-task behavior when the treatment was removed. All five quickly regained the treatment effects in the second treatment phase, again stabilizing quickly. Joe's behavior, however, required further analysis. In no phase of the study did his on-task behavior stabilize. As can be seen in Figure 7, his performance was variable across all conditions. Although variable, his on-task rates were considerably higher during the treatment conditions.

For all children, accurate classwork completion increased substantially with the school-home notes. Three of the subjects (Jerry, Joe, and Steve) decreased their work completion and accuracy when treatment was removed. The other three (Charles, Lauren, and Maurice) maintained their high treatment levels of completion and accuracy during the withdrawal phase. Although other elements operating in the classroom appeared to be maintaining these treatment gains, it is still possible that the initial implementation of the note was the cause of the improvements. It is possible that for these three students, parent and teacher praise for improved grades was sufficient reward to maintain their productivity even when the note was removed during the return to baseline condition. One limitation in the data is that the dates of the renegotiations of the school-home note contracts were not recorded. This represents a modification that could have resulted in increases and decreases in on-task levels.

The treatment acceptability data gathered from the informal interviews with all participants indicated that the note was highly acceptable to both teachers, as well as all six children and their mothers. Of the seven families that initially showed interest in this study, only one decided to treat their child's off-task behavior with medication rather than use the school-home note. This study suggests that a school-home note can be successfully implemented by low-income mothers and that these mothers are likely to deem it an acceptable method of behavior management.

The specifics of the acceptability data become more important when deciding which of the two notes to use with low-income, ADHD, elementary students. Because both notes appeared equally effective, it seemed logical to use the note without response cost note for its ease of use and more positive connotation. However, parents and teachers consistently chose the school-home note with response cost as the preferable note, despite reviewing data showing there was not a significant difference in the notes. It is possible that the response cost note had advantages over the traditional note that were not measured in this study.

Many of the advantages of home-based reinforcement procedures reported in the literature were experienced by the present study. Both

parents and teachers indicated that the increased communication was valuable. Teachers were able to give daily feedback to the parents about each child without having to make phone calls, set up conferences, or send notes that may or may not make it to the parent. Several mothers reported that they enjoyed receiving positive feedback on good days, rather than only hearing from the school when her child was in trouble. Also, the teachers appreciated not having to alter their classroom management routine greatly, or take time out of teaching to deal with the "problem students" in this study.

When measuring the impact of this study on current practice, the overlap of two at-risk populations must be considered. Not only are African American children more likely to be diagnosed with ADHD (Samuel et al., 1997), but also children from impoverished families are likely to show more severe symptoms of ADHD (Barkley, 1997). The present study suggests that procedures having been shown to be effective in treating middle-class, Caucasian children with attentional problems may, in fact, be equally effective for low SES, African American children with ADHD (Ayllon, Garber, & Pisor, 1975; Kelley & McCain, 1995; McCain & Kelley, 1994).

Future studies should use group design studies to corroborate the efficacy of school-home notes for larger samples of minority children with ADHD. The comparative effectiveness of school-home notes combined with psychostimulant medication versus medication alone is another important area for future research. Based on the findings that two students showed significant improvements even in the absence of consistent treatment integrity on the part of their mothers, research aimed at dismantling the school-home note intervention should be conducted to determine which components are essential to affect behavior change. The presence of the teacher feedback provided by the note alone may prove to be sufficient for improvements in classroom performance.

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